West Side Drainage History 1937 to Present

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Compiled and edited October 1992 from several previous drainage and Kesterson chronologies

Date	<u>Event</u>				
1937	Congress authorized the California CVP, including the Delta-Mendota Canal.				
November 1949	Status Report on San Luis Unit issued. The need for a drain is not discussed.				
1950	Delta-Mendota Service Area water deliveries began.				
Early 1950's	First tile drains are installed on the west side in the Grasslands area. Drains discharge into local wetlands.				
August 27, 1954	Congress enacted P.L. 83-674 which reauthorized the entire Central Valley Project. Section 1 of the Act of August 27, 1954, 68 Stat. 879, adds authority for the use of waters of the Central Valley Project for fish and wildlife purposes, subject to such priorities as applicable under said Act.				
	Section 2 of this Act provides for the construction of works and the delivery of water from the Central Valley Project to conserve and protect the waterfowl values and resources in the grasslands area of the San Joaquin Valley.				
May 5, 1955	Feasibility Report on San Luis issued by Regional Director, Mid-Pacific Region, Bureau of Reclamation. An earth-lined 300 ft ³ /s capacity interceptor drain was incorporated in the "distribution system and drains" category.				
1956	DWR* report to the legislature recommended the State study a "comprehensive master drainage works system" for the valley.				
1957	A master drain was included in the California Water Plan, an early blueprint for the State Water Project.				
1957-1963	San Joaquin Valley Drainage Investigation conducted by DWR.				
1960	Voters approved the State Water Project authorizing State participation in a drain if drainage repayment contracts were signed by users.				

June 3, 1960

Congress enacted P.L. 86-488 authorizing construction of San Luis Unit. The Act authorized the interceptor drain to be constructed by the Secretary of the Interior if the State of California did not provide a master drain.

June 21, 1961

Director of DWR notified the BOR that it would not provide drainage service and that the BOR should proceed with construction of the interceptor drain to serve San Luis only.

July 9, 1962

Letter from Regional Supervisor, River Basin Studies, BSFW, (FWS) Sacramento, to Regional Director, BOR, discussing relative merits of evaporation ponds in comparison to discharge to the estuary. BSFW memo also warned of the possibility of serious damage if highly toxic pollutants entered the drain and that the damage would most likely occur as a result of the accumulation of toxic material in the food chain within the estuary. The memo requested that full consideration be given to evapotranspiration for disposal of drainage but called for a testing program involving both drainwater and freshwater to assess the merits of the alternative for waterfowl management.

December 15, 1962

Definite Plan Report (DPR) on San Luis Unit issued by BOR. It showed San Luis Interceptor Drain as a Central Valley Project (CVP) feature to be repaid by a combination of increased water service charges on San Luis Unit and for all other sources of net revenue within the CVP. The drain design included capacity for areas other than San Luis, and provided for a concrete lining. Only the cost allocated to San Luis Unit was shown in DPR.

December 20, 1962

Lawsuit, Central Valley Irrigation District vs. Udall, Civil #2356-ND, filed in Federal District Court by owners of land adjacent to San Luis service area against the Secretary of the Interior over failure to provide for construction of San Luis interceptor drain.

January 15, 1963

Commissioner advised Secretary of the Interior that BOR was actively considering environmental effects of drain on the Lower Delta and Suisun Bay, and alternatives to a Delta discharge including evaporation ponds or an ocean discharge, either of which "might require additional authorization by Congress."

July 15, 1963

Lawsuit, Civil #2356-ND - plaintiff's motion for a preliminary injunction denied.

October 31, 1963	Laws
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Lawsuit, Civil #2356-ND - U.S. granted summary judgment.

November 19, 1963

Letter from Field Supervisor, BSFW (FWS), Sacramento, to CVRWPCB, Sacramento. In response to the Board's request for comments on the formulation of waste discharge requirements for the San Luis Drain discharge, BSFW stated that it would be unable to recommend specific requirements to safeguard fish and wildlife resources until detailed information regarding quality of the effluent is available.

February 20, 1964

Resolution No. 535 adopted by the SFBRWPCB "Prescribing Requirements as to the Nature of Water Discharge by Department of the Interior, Bureau of Reclamation, from Proposed San Luis Interceptor Drain Discharging into Tidal Waters of the State at Pittsburg or Port Chicago, Contra Costa County".

April 3, 1964

Director, DWR, wrote to the Regional Director and offered assurance that the State would provide a master drain after all.

June 22, 1964

DWR informed BOR that it would be willing to construct the first stage of the San Joaquin Master Drain with Federal financial participation to cover the drainage requirements of the San Luis Unit.

June 30, 1964

Planning of separate drain for San Luis only suspended; cooperative study of master drain begun.

January 1965

DWR issued a preliminary edition of Bulletin No. 127 "San Joaquin Master Drain". Also, the California State Senate's permanent Fact-Finding Committee, issued a report to the legislature on "The San Joaquin Valley Drain".

October 28, 1965

Congress included rider in CVP appropriation act for FY 1966 (P.L. 89-299) prohibiting selection of a final point of discharge for San Luis Drain until certain conditions have been met. A rider with similar, but not identical, language has been included in every annual CVP appropriation act since.

1966-1973

Interagency agricultural wastewater treatment studies conducted jointly by the BOR, DWR, and FWPCA (now EPA) near Firebaugh, California, to identify technically feasible methods for nitrogen removal. Last report was published in 1976.

May 2, 1966

Memo to files, summary report on alternative sites for a regulating reservoir on San Joaquin Master Drain in

	the Byron area.			
February 16, 1967	Lawsuit, Central California Irrigation District (CCID) vs. Udall, Civil #F-59 filed in Federal District Court in Fresno against Secretary of the Interior for failure to complete the drain.			
March 10, 1967	DWR advised BOR that it will not be constructing a master drain and that Bureau should proceed with construction of San Luis Drain.			
April 12, 1967	Commissioner Dominy and Assistant Commissioner Stamm appeared before House Appropriations Subcommittee to report the withdrawal of the State and to describe the status of San Luis Drain. An "unnamed reservoir" was mentioned in their testimony as a needed addition to the Drain.			
April 14, 1967	Memo from Regional Director to Commissioner proposing a reservoir at the Kesterson site, usable for either the master drain in combination with a Dos Palos reservoir or singly for a Federal-only San Luis Drain.			
1968	Water deliveries begin in the San Luis service area.			
	U.S. Bureau of Reclamation (USBR) begins construction of San Luis Drain.			
	USBR acquires 5,900 acres of land for Kesterson Regulating Reservoirs.			
1969	National Environmental Policy Act passed by Congress.			
March 1969	Staff of the SWRCB issued abridged preliminary edition of its Report on the San Francisco Bay-Delta Water Quality Control Program.			
May 21, 1969	"General Plan, For Use of Project Lands and Waters for Wildlife Conservation and Management at Kesterson Reservoir, California" executed by the Director, California Department of Fish and Game and by the Secretary of the Interior, as provided for by the Fish and Wildlife Coordination Act.			
June 1969	BOR prepared its "Plan for Disposal of Subsurface Agricultural Drainage". This described the plan for San Luis Drain which was the basis for construction.			
July 1, 1969	FWS began managing the lands acquired for Kesterson Reservoir under terms of a preliminary interim plan formally executed on July 25, 1969.			

the South Dos Palos area, Gustine-Kesterson area, and

formally executed on July 25, 1969.

July 1970	Construction of Kesterson Reservoir, Stage I, and adjacent reach of Drain initiated.
July 23, 1970	Cooperative agreement signed between the BOR and the FWS for the management of Kesterson Reservoir and associated lands for the conservation and management of wildlife, subject to the primary use of the lands for regulation of drain flows.
1972-1978	Kesterson Reservoir received water, mostly surface flows, from local sources and the Delta Mendota Canal. FWS operated the Reservoir for waterfowl production.
July 1972	Construction of Kesterson Reservoir, Stage I, and adjacent reach of Drain completed.
May 14, 1973	Lawsuit, Central California Irrigation District vs. Udall, Civil #F-59 - stipulation for removal with prejudice approved.
1974	DWR issued Bulletin No. 127-74, status of San Joaquin Valley Drainage Problems.
	San Joaquin Valley drain study; appraisal study authorized.
February 1975	Only remaining active construction contract on San Luis Drain completed, thus marking the start of an interruption in construction of San Luis Drain. About 40 percent of the Drain (85 miles) and the first stage of Kesterson Reservoir were completed.
June 1975	The first collector drain contract for WWD collector drainage system was awarded. Construction of the drainage collector system in 42,000 acre area of Westlands begins.
July 1, 1975	The San Joaquin Valley IDP was initiated by BOR, DWR, and SWRCB. Several public meetings were held.
February 27, 1976	National Wildlife Refuge System Administration Act of 1966 was amended, providing that lands administered by the Secretary of the Interior for conservation of fish and wildlife were to be designated as part of the National Wildlife System and administered through the Fish and Wildlife Service. This had the effect of placing the Kesterson lands within the National Wildlife Refuge System.
1977	During hearings for FY 1978, legislation was introduced to reauthorize the San Luis Unit to increase the

systems. This legislation became P.L. 95-46. June 15, 1977 P.L. 95-46 enacted by Congress. As directed, a 12member Task Force was created to study a comprehensive list of San Luis issues. December 1977 Task Force review of San Luis Unit completed. 1978 Task Force report published. Kesterson began to be used as interim evaporation ponds for subsurface agricultural drainage flows from collector system in WWD. Proportion of subsurface drainage flows to other flows increased each year until, by 1981, inflows to Kesterson were principally subsurface drainage water. Letter from Executive Director - Water Quality, SWRCB, March 14, 1978 to Regional Director, BOR, informing BOR that SWRCB had the authority to set discharge requirements, but was not in a position to do so a this time. DWR indicated a master drain will be necessary and January 1979 proposes State-Federal cost sharing. February 22, 1979 Letter from Executive Officer, San Francisco Bay RWQCB, to Director, San Joaquin Valley IDP, listing their concerns about the discharge and the information needed to set discharge requirements. April 6, 1979 Barcellos & Wolfsen and others file suit against Westlands concerning 1963 contract rights and Westlands Westplains merger statute; District's motion to have United States and different classes of landowners and water users included as defendants is granted. May 4, 1979 Memo from Acting Director, FWS, to Legislative Counsel objected to authorization for completion of San Luis Drain until adequate study is made. Water quality concerns were cited. June 29, 1979 IDP appraisal-level report completed. It is submitted to the Commissioner as the San Joaquin Valley Drain Study Appraisal Report. Draft EIR for the IDP indicates that boron, iron, mercury, and pesticides may be present in drainwater in toxic concentrations.

appropriation ceiling for distribution and drainage

requirements.

Letter from Assistant Regional Director, BOR, to Chairman, SWRCB, requesting that since the IDP report was completed, the SWRCB could now set discharge

October 19, 1979

December 1979

WWD filed counterclaim in Barcellos case with respect to validity of temporary water service contract arrangements with U.S. (which involved the drainage repayment issue).

December 10, 1979

SWRCB said it is considering the process for developing and issuing the Report of Waste Discharge. They are considering taking the lead in such development because of the overlapping involvement of the two Regional Boards. SWRCB will send more detailed response by 1/1/80.

June 1980

Interior Secretary Andrus issues press release and letter concerning Interior's commitment to resolving the Drain issue.

August 1980

Westlands urges Interior to use IDP concept of San Luis Drain and that the Drain be considered a main CVP facility.

August 21, 1980

Letter from Acting Regional Director, BOR, to Chairwoman, SWRCB, again asking that discharge requirements be issued.

October 3, 1980

P.L. 96-375, 94 Stat. 1505, enacted - authorized San Joaquin Valley Drainage Investigation feasibility study (Regional Study).

November 12, 1980

SWRCB workshop on SLD discharge requirements.

1980-1984

Information being gathered in technical studies to obtain a discharge permit from the SWRCB by the BOR, cooperating state and federal agencies, universities, and private consultants.

1981

Inflows to Kesterson became principally subsurface drainage water. In cooperation with FWS field staff, BOR began to be increasingly involved with the operation of Kesterson Reservoir.

1981

The BOR began to develop detailed plans for completion of the San Luis Drain and also to reevaluate possible alternatives (In Valley Evaporation, Desalting, and no action).

Drain studies were begun by BOR to identify any potentially toxic constituents in the Drain water.

Kesterson Reservoir freshwater inflow ceases. Discharge consists exclusively of subsurface agricultural drainage water from Westlands. USBR imposes moratorium on additional farm drainage connections to San Luis Drain because of limited capacity at Kesterson Reservoir.

Drained lands in northern San Luis Unit continue discharging through local wetlands to San Joaquin River.

High selenium concentrations found by USBR in San Luis Drain and Kesterson Reservoir water samples.

May 12, 1981

BOR instructed WWD to discontinue further connections of on-farm drains to the San Luis Drain because of limited capacity at Kesterson Reservoir.

June 1981

San Luis Drain Report of Waste Discharge Study was initiated.

July 1981

WWD filed suit against U.S. on all issues, including the District's right to drainage service under its 1963 contract (subsequently consolidated under April 1979 Barcellos & Wolfsen suit).

September 1981

WWD and U.S. Justice Department entered into stipulated agreement for continued water service for three years or until settlement by court or negotiations.

Report to SWRCB describing study proposals for discharge to Suisun Bay.

November 6, 1981

SWRCB's public meeting to receive comments on "U.S. Bureau of Reclamation Study Plans for Completing a Report of Waste Discharge for the Proposed San Luis Drain Agricultural Discharge to the San Francisco Bay-Delta Estuary." Proposals dealt with impact assessment of salinity, nutrients, and boron from the Drain.

December 4, 1981

P.L. 97-88, 95 Stat. 1139, enacted - required that a point of discharge for the San Luis Drain not be determined until the Secretary of the Interior and the State of California have developed a plan conforming with State water quality standards, as approved by EPA, to minimize any detrimental effect of the San Luis drainage waters (similar to riders to CVP annual appropriation bills since 1965).

1982

All preconstruction work for the remainder of the distribution system, collector drainage system and for San Luis Drain suspended pending budgetary authorization.

USFWS finds high selenium concentrations in fish at Kesterson Reservoir.

Kesterson Reservoir, Second Stage, delayed pending further environmental considerations.

February 17, 1982

State law authored by assemblyman John Thurman, (D-Modesto) sets requirements for discharge and cost allocation for the Drain.

June 3, 1982

SWRCB workshop on BOR proposed Report of Waste Discharge studies.

July 12, 1982

Letter from Director, DWR, to Regional Director, BOR, saying that the State would not participate now in the development of facilities, since State Water Project contractors "are not willing to participate in a valley drain at this time".

1983

USFWS biologists discover higher than normal amounts of waterfowl mortalities and deformities at Kesterson Reservoir.

USBR takes action to minimize waterfowl attraction at Kesterson Reservoir by reducing number of ponds and providing additional water deliveries to neighboring wetland areas.

February, March, April 1983

Series of meetings with SWRCB on Suisun Bay Discharge proposals.

February 23, 1983

Memo from Field Supervisor, FWS, to Regional Director, BOR, noting the high levels of selenium in the drainwater and asking that BOR study plans be modified to include studies on selenium. Bioaccumulation in the food chain should also be studied.

May 1983

FWS began field studies on selenium effects on waterfowl reproduction; field observations showed high rate of mortality and deformities.

May 25, 1983

Letter from SWRCB to Acting Regional Director, BOR, transmitting Board Resolution 83-32 concurring with BOR Study Plans for completing Report of Waste Discharge for San Luis Drain discharge to Delta provided that specific modifications are included in Study Plans.

July 8, 1983

Memo from Field Supervisor, FWS, to Regional Director, BOR, alerting him to the high incidence of abnormalities in waterfowl at Kesterson and transmitting copy of FWS "Concern Alert".

September 21, 1983

Information on deformed waterfowl at Kesterson first reported in newspapers.

November 17, 1983

Letter from Chairwoman, SWRCB, to Regional Director, BOR, stating that California Department of Fish and Game (DFG) and FWS programs for evaluating use of drainwater for establishing wetland habitat must be "funded and initiated" before the Board may issue a discharge permit for the SLD (Thurman Bill stipulation - Ch 12.2, Sec 13953.2(d)).

December 5-7, 1983

Toxicity research scoping conference held. The four major topics discussed were: (1) Biological systems and the impacts of selenium at Kesterson Reservoir; (2) geochemistry of selenium in west San Joaquin Valley soils; (3) speciation and concentrations of selenium in water sediments and organisms; and (4) avian toxicology of selenium. Report of the proceedings was prepared by Ecological Analysts.

December 8, 1983

Letter from Field Supervisor, FWS, to Regional Director, BOR, transmitting report on the FWS Patuxent Wildlife Center's analysis for selenium of duck breast muscles collected at Volta and Kesterson National Wildlife Refuges. This information served as the basis for the development of interim actions, which included the hazing and alternative habitat programs.

Jan. 3 1984

California Department of Fish and Game announces it is posting health warnings on high selenium concentrations in Kesterson Reservoir coots.

April 27, 1984

R. James Claus petitions Regional Board to take action against BOR, Grasslands Water District, and 18 dischargers of agricultural drainage flows. Board declined.

May 1984

GS issues report noting high concentrations of selenium in water, algae and sediment from Kesterson Reservoir and the San Luis Drain.

May 18, 1984

R. James Claus appealed Regional Board inaction to the State Water Resources Control Board.

June 1984

BOR decided not to release draft planning report EIS or draft Report of Waste Discharge.

Letter from Acting Regional Director, BOR, to Tim Durbin, District Chief, GS, transmitting a fully executed copy of Amendment No. 2 to provide additional analyses as part of the San Luis Drain Report of Waste Discharge. August 1984

Governor Deukmejian and Secretary of Interior Clark established the San Joaquin Valley Drainage Program as a cooperative effort of the U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, U.S. Geological Survey, California Department of Fish and Game, and California Department of Water Resources. As outlined in a July 24, 1984, statement by then-Secretary William Clark, the purpose of the Program was to conduct "comprehensive studies to identify the magnitude and sources of the (drainage) problem, the toxic effects of selenium on wildlife, and what actions need to be taken to resolve these issues."

August 15, 1984

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Letter from Executive Director, SWRCB, to Regional Director, BOR, reporting Board findings concerning allowable levels of selenium in waters discharge to the Suisun Bay. The tentative suggested maximum level in drainage effluent is 53 ug/L with a warning that this is probably high because it assumes that there is no back washing with already mixed effluent and receiving water which is probably wrong. It also discusses how this figure was arrived at.

September 1984

"Toxic Pits Cleanup Act of 1984", known as the Katz bill, enacted by the State of California.

Hazing program began at Kesterson to keep birds off ponds. Alternate habitat is to be provided with 15,000 acre-feet of clean water.

October 1984

Land Preservation Association (LPA) is formed to help water districts address drainage water management and disposal problems.

Oct. and Dec. 1984

State Board holds evidentiary hearings on Claus petition.

January 1985

Grassland Water District on the advice of the USFWS discontinues use of Grasslands area drainage water on its wetlands because of concern over selenium in the drainage water.

February 1985

SWRCB adopts Cleanup and Abatement Order for Kesterson Reservoir, which requires USBR to submit cleanup plan within 5 months and to implement plan within 3 years. Board also directs staff and Regional Board to make plans to control drainage from the Grasslands area in the next 18 months.

March 1985

U.S. Department of Interior announces plans to immediately close Kesterson Reservoir and San Luis Drain and terminate irrigation deliveries to

April 1985 U.S. Department of Interior and WWD reach agreement to continue delivery of irrigation water to all of Westlands and close Kesterson Reservoir and San Luis Drain. Districts in Grasslands area form a local task force to develop solutions for managing drainage water. May 3, 1985 BOR provides Nuisance Abatement Plan to State Board. May 9, 1985 Filing of Claus v. United States, 270-85 L. Plaintiffs seek compensation for a taking of their property by seepage of drainage water from Kesterson Reservoir, and non-receipt of just compensation for a waterfowl conservation easement interest granted to the U.S. May 16, 1985 Filing of Schwab v. United States, 292-85 L. Plaintiffs seek compensation for a taking of their property by seepage of drainage water from Kesterson Reservoir. May 27, 1985 Monitoring Program delivered to State Board; document revised Jan 2, 1986 June 1985 WWD begins pilot testing selenium removal from drainage water with anaerobic bacteria process. July 5, 1985 Closure and Cleanup Framework Plan delivered to State Board. August 22, 1985 State Board Order WQ 85-5 requires Closure and Post Closure Maintenance Plan for Kesterson by Dec 1, 1986. August 23, 1985 NRDC files suit alleging Interior noncompliance with various State and Federal environmental laws in connection with the San Luis Unit in general and Kesterson Reservoir and the San Luis Drain in particular. September 1985 Newly formed Grasslands Task Force enters into an agreement with the State of California to build a bypass to route drainage water around the wetlands area in the Grasslands.

the Migratory Bird Treaty Act.

42,000 acres in WWD because of concern for violation of

the House Appropriations Subcommittee.

Interior delivers the first of the San Joaquin Valley Drainage Program quarterly status reports requested by

November 1985	Panoche Water District and other Grasslands area water districts begin working with Harza Engineering of Chicago on an iron absorption process to remove selenium from drainage water.
Nov 19, 1985	Westlands Water District filed a draft EIR on plans for on-farm management, water recycling, and plugging the collector drain system if necessary to comply with April 3 Agreement.
Nov 22, 1985	Amended Nuisance Abatement Plan transmitted by BOR to State Board.
May 16, 1986	Westlands Water District completed plugging the subsurface drains.
Jun 9, 1986	Termination of agricultural drainwater discharges into the San Luis Drain north of Bass Ave.
September 1986	WWD board approves a \$6.6 million drainage treatment and disposal program that involves a prototype selenium removal plant and a prototype deep well injection unit.
Oct 9, 1986	BOR transmits Waste Classification Report to State Dept of Health Services requesting nonhazardous classification of Kesterson soils and sediments; additional data transmitted Mar 4, 1987.
Oct 20, 1986	Final EIS for Kesterson cleanup filed with USEPA; recommended Flexible Response Plan (FRP)
Dec 1, 1986	Closure & Post-Closure Maintenance Plan submitted to State Board.
December 1986	WWD board authorizes \$100,000 for a district-wide water conservation and management program.
December 30, 1986	A compromise settlement between the United States and Westlands Water District was entered and filed as a court judgment by a United States District Court (Barcellos Judgment). The Judgment, among other things, required the Federal government to develop a plan for "Drainage Service Facilities" by December 31, 1991. Section 6.1.1 of the Judgment stipulated that the "Drainage Service Facilities" shall have "sufficient capacity and capability to transport, treat as necessary, and dispose of, the annual quantity of subsurface agricultural drainage water from the District (not less than 60,000 acre feet and not more than 100,000 acre feet) required to be disposed of by December 31, 2007.

December 31, 2007 . . . ". To help finance construction of the Drainage Service Facilities, the District was

required to make annual contributions into a trust fund established under the Judgment.

Jan. 26-27, 1987

State Board holds evidentiary hearings on Closure & Post-Closure Maintenance Plan.

February 1987

A "San Joaquin Valley Drainage Program Prospectus" was issued by the Program. The report discussed the SJVDP's goals and objectives, completed and continuing activities, and planned activities for the next 4 years. The report described the purpose of the program as "to investigate the problems associated with the drainage of irrigated agricultural lands on the west side of the San Joaquin Valley and to formulate, evaluate, and recommend alternatives for the immediate and long-term management of those problems." Onfarm management and drainage water treatment and disposal were identified in the report as potential solutions being studied at that time.

March 19, 1987

SWRCB rejects the phased approach plan and orders (WQ 87-3) BOR to implement the onsite disposal plan to clean up Kesterson Reservoir.

April 1987

The Secretary of Interior announces continued voluntary cooperation with the SWRCB in meeting cleanup goals at Kesterson.

The San Joaquin Valley Drainage Program issued a draft report which discussed ocean disposal possibilities. The report, entitled "Screening Potential Alternative Geographical Disposal Areas," was prepared under contract by Brown and Caldwell, Consulting Engineers.

August 1987

Field testing of a biological cleanup plan for selenium eating fungi begins at Kesterson Reservoir.

August 14, 1987

Regional Board issues Waste Discharge Requirements for Kesterson cleanup (Order No. 87-149).

August 17, 1987

In response to adverse public reaction to the Brown and Caldwell report, the San Joaquin Valley Drainage Program's Policy and Management Committee narrowed the focus of the Program by issuing the following directive:

"Recognizing and agreeing with the advisory action of July 27, 1987, by the Citizens Advisory Committee, the Policy and Management Committee requests the Program managers to focus investigative and planning efforts on in-valley solutions to the San Joaquin Valley drainage problem . . . No studies of out-of-valley disposal of

	agricultural drainwater, or concentrated brine, will be undertaken by the Program."			
September 1987	WWD begins research into cogeneration as one technological solution to the drainage problem.			
	Claus and Schwab litigation settled.			
Oct 14, 1987	Pollutant Plume Monitoring Plan provided to Regional Board (per Aug 14 permit)			
Oct 15, 1987	Biological Monitoring Program transmitted to Regional Board (per Aug 14 permit)			
Oct 15, 1987	First Quarterly Report of Kesterson monitoring programs transmitted to Regional Board (per Aug 14 permit)			
Dec 11, 1987	Central Valley Regional Board meeting on waste discharge requirements for dewatering; NPDES permit for dewatering of Reservoir approved by Regional Board			
Dec 14, 1987	Solicitation for bids issued and construction specifications distributed for Kesterson cleanup (for completion of landfill by Nov 30, 1988)			
Mar 7, 1988	Bid opening for Kesterson cleanup contract.			
March 1988	Westlands Water District indefinitely postpones research on its prototype selenium removal plant because it does not appear to be economically feasible on a larger scale.			
April 1988	Grassland Water District and upslope districts enter into first of several short-term agreements to share costs of providing freshwater to the Grasslands and routing drainage water around the Grasslands.			
	The Central Valley Regional Water Quality Control Board (CVRWQCB) begins hearings on development of water quality standards for the San Joaquin River to control drainage flows from the Grasslands areas.			
April 5, 1988	Freitas vs U.S. lawsuit filed, alleging inverse condemnation of property adjacent to Kesterson Reservoir.			
April 12, 1988	Reservoir dewatering completed in preparation for onsite disposal plan excavation.			
Apr 15, 1988	Department of Interior files petition with State Board and requested hearing for reconsideration of Onsite Disposal Plan based on recent research findings.			

April 21, 1988	State Board schedules hearings to consider new evidence on the Onsite Disposal Plan.
May 24-25 1988	State Board evidentiary hearings to reconsider Kesterson cleanup strategy.
June 1988	Negotiations are underway between Santina Water Company and several west-side water agencies to build a \$170 million demineralization treatment plant.
July 5, 1988	The SWRGB issues a revised cleanup order (WQ 88-7) for Kesterson Reservoir, scrapping the onsite disposal plan and ordering the immediate filling of low-lying areas with dirt.
July 6, 1988	BOR issues contract to begin filling Reservoir.
October 1988	Broadview Water District begins trial tiered water pricing program to give growers an incentive to reduce their drainage volume through improved irrigation.
November 1988	Filling of Kesterson Reservoir completed.
December 1988	The CVRWQCB adopts water quality standards for the San Joaquin River and an implementation plan to those standards. Districts in the Grasslands area will be required to prepare drainage operation plans by October 1989.
January 1989	LPA member agency investment tops \$12 million on direct efforts to solve the west-side's drainage problem.
March 1989	Grassland Basin water agencies hire water conservation coordinator. Districts begin developing aggressive water conservation programs.
April 1, 1989	Per Order WQ 88-7, USBR transmits to the State Board a package containing an evaluation of the success of filling the ephemeral pools, an assessment of selenium impacts on upland habitat, and a Final Cleanup Plan. The final cleanup plan suggests a three-point program of continuing site management to eliminate any wet habitats, monitoring, and continuing research into finding ways to dissipate the selenium inventory in soil.
May 24, 1989	Regional Board adopts order directing that a long-term wetlands mitigation plan be submitted by November 27, 1989 (Order 89-095).

June 1989

Grassland Basin water agencies submit to USBR a proposal to use the now-empty San Luis Drain to convey drainage water from farms in the Grassland Basin to the San Joaquin River.

Drilling begins on 8,100-foot prototype injection well in WWD, which will be used to dispose of drainage water beginning in March 1990.

July 1989

The Bureau of Reclamation establishes the San Luis Unit Drainage Program for the purpose of identifying and implementing a drainage plan leading to a long-term solution to the agricultural drainage problems of the San Luis Unit and satisfying the requirements of the Barcellos Judgment.

August 1989

Resource Management International, Inc. tells WWD that selenium removal by cogeneration is feasible and should be further studied.

September 21, 1989

State Board approves Final Cleanup Plan for Kesterson Reservoir (Order WQ 89-16).

October 1989

WWD enters into an agreement with State and Federal agencies and universities to begin work on a water treatment research center to be located in the district.

Panoche Drainage District begins field construction of a prototype field facility that will use the "Harza Process" to remove selenium from farm drainage water.

Grassland Basin water districts submit plans to the CVRWQCB detailing how they plan to meet water quality standards in the San Joaquin River.

November 1989

The San Joaquin Basin Action Plan/Kesterson Mitigation Plan is submitted to the Regional Board (per Order No. 89-095).

September 1990

The San Joaquin Valley Drainage Program issued its final report entitled "A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley." The report stated in part that "The Plan is not site-specific, and, without more detailed analysis, it is not a plan from which structures may be built. Rather, it should be considered a framework that will permit the present level of agricultural development in the valley to continue . . ."

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